

LISTING OF CLAIMS:

1-7. (canceled)

8. (previously presented) A singulated integrated circuit die, comprising:

an active surface;

a plurality of substantially spherical solder bumps formed on the active surface of said die such that base junctions between said solder bumps and their associated surfaces of formation define first wetting angles, wherein each of said substantially spherical solder bumps is formed from a single homogenous material; and

a single support coating formed on said active surface of said die such that mid-level wetting angles are formed at mid-level junctions where the upper surface of said single support coating meets said solder bumps, wherein said single support coating has been fully cured prior to any reflow of said plurality of solder bumps, wherein the height of said single support coating is from about 20 percent to about 70 percent of the pre-reflow height of said solder bumps, wherein said single support coating and said solder bumps are arranged such that when the solder bumps are reflowed as part of a soldering operation to secure said singulated integrated circuit die to a support, the resulting mid-level wetting angles remain sufficiently high such that said mid-level junctions do not become the primary location for solder joint failure, and the resulting first wetting angles are at least approximately 50 degrees, and wherein said single support coating consists of the only coating formed on said active surface of said singulated integrated circuit die.

9. (previously presented) The singulated integrated circuit die of claim 8, wherein said support coating is formed from an epoxy based material.

10. (previously presented) The singulated integrated circuit die of claim 8, wherein the height of said support coating is about 40 to 60 percent of the pre-reflow height of said solder bumps.

11. (previously presented) The singulated integrated circuit die of claim 10, wherein the height of said support coating is about 48 to 52 percent of the pre-reflow height of said solder bumps.

12. (previously presented) The singulated integrated circuit die of claim 8, wherein said support coating is applied to the active surface such that a plurality of underlying contact pads, under bump metallizations, and the active surface are all substantially covered by the support coating.

13. (previously presented) An integrated circuit device, comprising:

- a die having an active surface and a plurality of die contact pads formed on the active surface of the die;

- a plurality of solder bumps coupled with associated die contact pads, wherein each of said solder bumps is formed from a single homogenous material; and

- a support coating formed on said active surface of said die, wherein said support coating is sufficiently rigid such that it is suitable for significantly constraining portions of the solder bumps near the bump to die interfaces during a subsequent reflow of said plurality of solder bumps, and wherein the height of said support coating is from about 20 percent to about 70 percent of the pre-reflow height of said solder bumps.

14. (withdrawn) A system comprising:

the integrated circuit device of claim 13; and

a substrate having a plurality of substrate contact pads, wherein said integrated circuit device has been coupled with one or more substrate contact pads to form one or more solder joints, and wherein the junction between at least one of said one or more solder joints and its associated die contact pad defines a wetting angle that is at least approximately 40 degrees.

15. (withdrawn) The system of claim 14, wherein the offset distance between said die and said substrate is at least 12 mils.

16. (withdrawn) The system of claim 14, wherein the maximum solder joint width is less than 115 percent of the maximum width of the corresponding solder bump prior to reflow.

17-20. (canceled)

21. (previously presented) The integrated circuit device of claim 13, wherein said support coating has been fully cured prior to any reflow of any of said plurality of solder bumps.

22. (withdrawn) A semiconductor wafer, comprising:

a multiplicity of integrated circuit devices as recited in claim 13.

23. (withdrawn) A semiconductor wafer as recited in claim 22, wherein the height of said support coating is about 50 percent of the pre-reflow height of said solder bumps.

24. (withdrawn) A semiconductor wafer as recited in claim 22, wherein the junction between the solder bumps and their associated contact pads define wetting angles that are at least approximately 40 degrees.

25. (previously presented) The integrated circuit device of claim 11, wherein the height of said support coating is about 50 percent of the pre-reflow height of said solder bumps.

26. (previously presented) The integrated circuit device of claim 8, wherein said support coating is formed such that a reflow of said solder bumps results in first wetting angles and mid-level wetting angles that are greater than about 50 degrees.

27. (previously presented) The integrated circuit device of claim 25, wherein said support coating is formed such that a reflow of said solder bumps results in first wetting angles and mid-level wetting angles that are equal to or greater than about 60 degrees.

28. (withdrawn) A semiconductor wafer having an active wafer surface, the wafer comprising:

a multiplicity of integrated circuit devices as recited in claim 8.

29. (withdrawn) A semiconductor wafer as recited in claim 28, wherein said support coating is applied to the active wafer surface such that a plurality of underlying contact pads, under bump metallizations, and the active wafer surface are all substantially covered by the support coating.

30. (withdrawn) A semiconductor wafer as recited in claim 28, wherein the height of said support coating is about 50 percent of the pre-reflow height of said solder bumps.

31. (canceled)

32. (previously presented) An integrated circuit device, comprising:

a die having an active surface;

a plurality of solder bumps formed on the active surface of said die such that base junctions between said solder bumps and their associated surfaces of formation define first wetting angles, wherein each of said solder bumps is formed from a single homogenous material; and

a support coating formed on said active surface of said die such that mid-level wetting angles are formed at mid-level junctions where the upper surface of said support coating meets said solder bumps, wherein said support coating has been fully cured prior to any reflow of said plurality of solder bumps, wherein the height of said support coating is from about 20 percent to about 70 percent of the pre-reflow height of said solder bumps, and wherein said support coating and solder bumps are arranged such that when the solder bumps are reflowed as part of a soldering operation to secure said integrated circuit device to a support, the resulting first wetting angles are at least approximately 40 degrees.